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SECOND ISSUE
•
OCTOBER 1959

2nd Year
Vol. 52
No. 20

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OIL WORLD

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New Refining Process Available To Oil Industry

A new petroleum refining process which manufactures gasoline of unusually high octane number from low grade petroleum fractions has been developed by California Research Corporation, a subsidiary of Standard Oil Company of California.

Known as "Isocracking," the new development has been termed one of the most significant advances in a decade of refinery science and will be made available to the entire petroleum industry through licensing arrangements, according to Cal Research President A. L. Lyman.

"Isocracking," Lyman said, "will permit refiners to take marginal stocks formerly difficult to refine efficiently and convert them into superior quality products. This new process represents a goal toward which the industry has been working for many years and it has finally been perfected using low temperatures and pressure in conventional types of equipment."

He pointed out that present gasoline manufacturing methods "crack" petroleum hydrocarbons at high temperature and pressure and cannot efficiently utilize low-grade feed stocks such as cycle oils which are produced in quantity as part of refining operations. Isocracking thrives on this type of feed stock by use of a rugged new catalyst developed after more than 100,000 hours of pilot plant operations.

Listing the advantages of Isocracking to both manufacturer and customer, Lyman said it provides: (1) Marked octane improvements coupled with close product quality control—both of extreme importance in a competitive market; (2) Process yields of over 100 per cent by volume using conventional types of equipment erected at a cost comparable to today's refining units; (3) A substantial reduction in the manufacture of fuel oils, currently in oversupply.

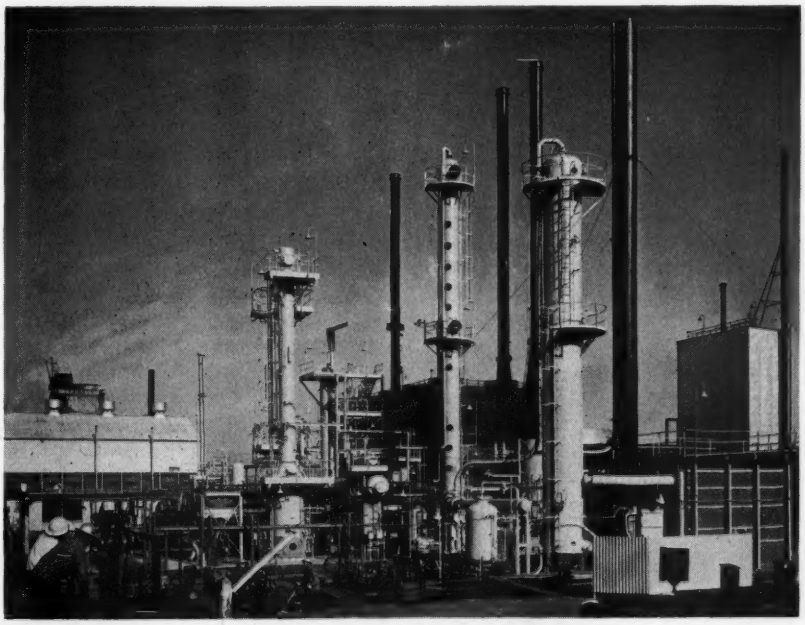
In this vein, Isocracking allows the refiner to improve his over-all economics by converting more of his crude into profitable light products.

The on-plot cost of an Isocracker unit is estimated to range from $350 to $450 per daily barrel of reactor feed. The plant operates with a high per-pass conversion in the range of 50 to 70 percent. Operating costs compare to those for a two-stage catalytic reformer and economic studies show that installation will often pay out before tax in under two years.

Lyman also stated that a commercial Isocracking unit had been placed in operation at Standard's Richmond refinery and further use of the process at company installations elsewhere is under study.

Editor's note: This plant is an entirely different one than the expansion to Richmond refinery featured in our August 15 issue.

Operations of the Richmond commercial Isocracking plant have substantiated the pilot plant development of the process.



New Isocracking Plant at Richmond Refinery

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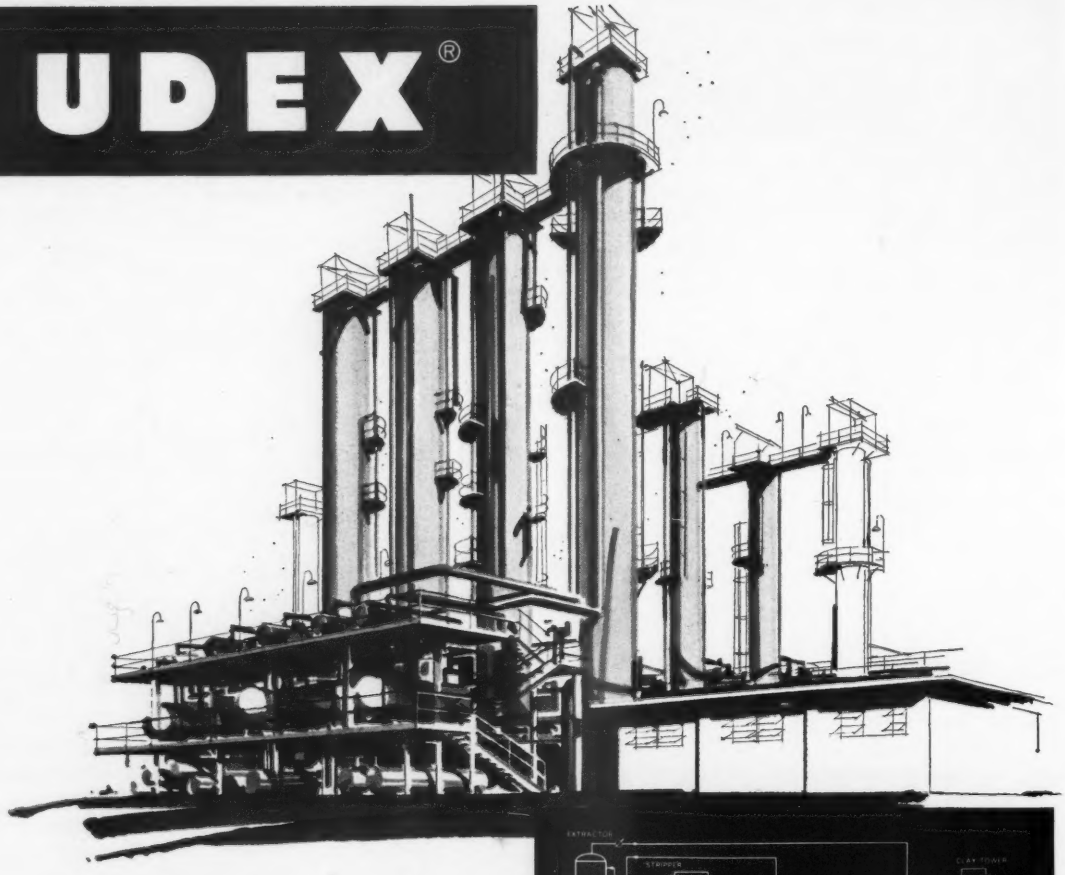

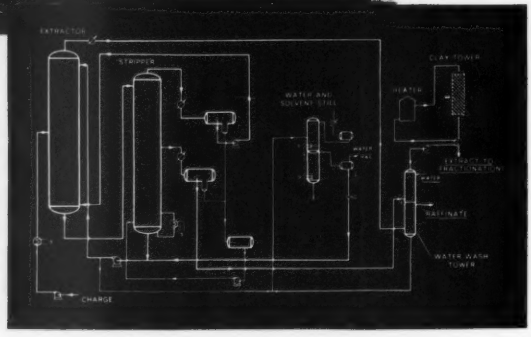

The ideal process for separation of super-purity aromatics

You can get substantial production of high-purity aromatics and still keep costs at a minimum with UOP's Udex extraction process. Udex-processed benzene, toluene and xylenes not only meet nitration-grade specifications but exceed these requirements in purity. These aromatics are produced at extremely low cost, since relatively inexpensive and readily available glycol solvents are used in the process. Utility requirements are considerably lower, too. The versatile Udex process permits recovery of aromatics from catalytic reformates, from by-product light oils produced in coke-oven operation, from thermal aromatic concentrates such as ethylene co-product light oil fractions and other aromatic-rich by-products. Although most petrochemical processors place major emphasis on recovery of benzene, toluene and xylenes, the Udex process also permits recovery of heavier aromatics and dicyclics in high purity. Udex is just one of many UOP refining and petrochemical processes available to the entire refining industry. A complete booklet on the UOP Udex process has just been published and is yours for the asking. For a detailed description of this process, how it works and the economic factors of cost and production, write us on your company letterhead.

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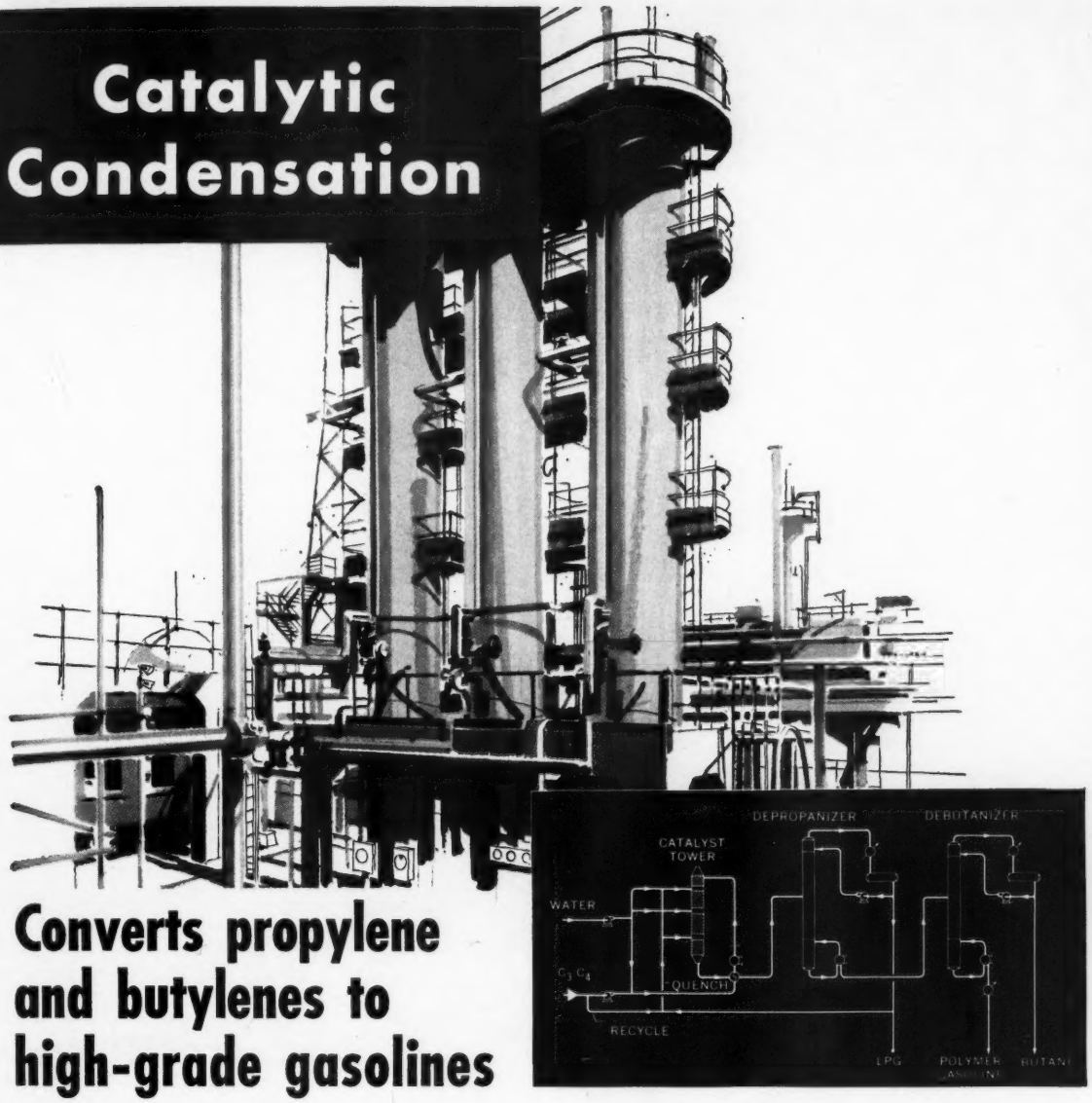
Catalytic Condensation



Converts propylene and butylenes to high-grade gasolines

This is another UOP process designed to help the refiner realize his greatest potential. Catalytic Condensation converts the propylene and butylene portions of refinery gas into high grade motor gasolines, by contact with UOP Solid Phosphoric Acid catalyst. Polymerization may be controlled to yield products which, on hydrogenation, produce saturated gasolines of high octane number.

Catalytic Condensation also offers an efficient means for producing specialty polymers of light olefins, for which there is a rapidly growing market for chemical use. For example, propylene can be polymerized to products rich in C_6, C_9, or C_{12} olefins, which are useful as raw materials for producing detergents and alcohols. The process may also be used to react ethylene and propylene with benzene to form, respectively, ethylbenzene for the production of styrene, and cumene for use in manufacturing acetone and phenol.

This is but one of many refining and petrochemical processes available from UOP. Write for process brochure and detailed information.

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More Than Forty Years Of Leadership In Petroleum Refining Technology

William D. "Bill" Tetsch, executive vice president of Terminal Drilling & Production Company, Los Angeles, presents Meritorious Service Award to F. A. "Pug" York.

Drilling Contractors Present Service Awards

Honored for their outstanding contributions to the drilling industry, eight men were presented Meritorious Service Awards by the American Association of Oilwell Drilling Contractors at its 19th Annual Meeting in Oklahoma City.

The awards, presented for the first time this year, are designed to pay special tribute to both members and non-members of the Association who have advanced the science and status of the oil well drilling industry.

Among award winners and their citations was F. A. "Pug" York, Miller & York, Inc., Bakersfield, California—"In deep appreciation and recognition of his outstanding record for long unselfish and tireless services on behalf of the drilling business and of this Association. His efforts have helped to advance the well being of and respect for the drilling industry and the Association at both regional and national levels."

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Low-Cost Energy and Progress Of Human Race Discussed

The pivotal role played by low-cost energy in advancing the progress of the human race will be discussed at a symposium November 4 at Columbia University.

More than 300 government, business, educational and other civic leaders are expected at the meeting, which will be sponsored jointly by Columbia's Graduate School of Business and the American Petroleum Institute in conjunction with the 100th anniversary of the birth of the oil industry.

Five experts will assess the past, present and future function of low-cost energy in the economic and cultural development of mankind.

Dr. Edward Teller, University of California physicist, will discuss potential energy developments of the future, and Herbert Hoover, Jr., former U.S. Undersecretary of State, will analyze the relation of energy and world affairs.

Allan Nevins, noted historian, will trace the part played by energy in the history of the western world and Robert G. Dunlop, president of Sun Oil Company, will talk on the "Petroleum Revolution." Professor Edward S. Mason of the Harvard Graduate School of Business Administration will speak on low-cost and abundant energy.

Exploration Geophysicists to Meet in L.A. Nov. 9-12

The constantly increasing importance of electronic computers in exploration for oil will be recognized during the 29th Annual International meeting of the Society of Exploration Geophysicists in Los Angeles, November 9 thru 12th. The general session Wednesday afternoon November 11, under the chairmanship of Henry F. Dunlap of the Atlantic Refining Co. and Carl H. Savit of Western Geophysical Co. will feature six papers presented by oil scientists, dealing with various phases of the subject. George W. Brown of University of California at Los Angeles will conclude the session with a special address.

Advance reservations indicate an attendance of more than 1500 people at this International four day meeting with representatives from many countries outside the United States. All sessions will be held at the Biltmore Hotel.

In addition to the technical and general sessions, there will be a large number of exhibits of equipment used by geophysicists, a full entertainment program and special events for the ladies.

The general theme of the meeting will be "Integrated Exploration."

A MONEY hat was the thoughtful gift of long time associates at Tidewater Oil Company to A. Gertrude Peterson who retired recently with 46 years of service. Covered with paper money in $1, $5 and $10 denominations, the hat is a natural straw with a butterfly (upper left) whose wings are a $50 bill. Only woman employee in Tidewater history to have the title of assistant secretary with corporate signing authority, Miss Peterson also is the Flying A firm's only western division employee of her sex to complete 46 years with the Los Angeles-headquartered oil company. The hat was designed by Geord of Los Angeles.

Dad gets a driving lesson...

One sure sign a boy is growing up is when he starts teaching his father something Dad has been doing for years. Driving, for example.

Tommy is typical of many 16-year olds. It wasn't too long ago that he occupied the family car only as a rider. Now, a few years later, he's giving his Dad a few tips on driving—and he's well qualified to do so, as his Safety-Economy Run Trophy testifies.

The Safety-Economy Run is now a well-accepted event all over the West. Four years ago, though, it was unknown. In March 1953, General Petroleum saw the need for encouraging young people to test the knowledge they had learned in high school driver education courses. As a result, working with civic groups and assisted by law enforcement officers and school officials, General Petroleum played an important role in the organization of the first Safety-Economy Run in Santa Paula, California. This small-scale version of the famous Mobilgas Economy Run saw 28 teen-age drivers take family cars on a 120 mile run.

Today, as thousands of high school students participate in their own local Runs, there's evidence to show that these youngsters do know more about the art of safe and economical driving than some of their Dads. General Petroleum feels proud to have started these Safety-Economy Runs. It is another of the many efforts General Petroleum is making to benefit America's younger citizens.

Mobil

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Petroleum LORE and LINGO

By RICHARD SNEDDON

Detonation is Discovered

The discovery of the nature of detonation and the fact that it could be suppressed by the appropriate use of tetra-ethyl lead was such an important factor in the expansion of the petroleum industry between 1920 and 1950, that it will be edifying to take a closer look at the phenomenon and all its involved elements. It is really a most interesting story of applied research!

In the transition from the era of the kerosene lamp to that of the automobile, it became necessary to devise a satisfactory fuel for the propulsion of the amazing new horseless carriage. As early as 1912, it was obvious to economics experts that the automobile had passed the novelty stage and was ready to take its place as a significant transportation medium for both people and things.

Engineers had already recognized the interrelationship of compression ratio and engine horse-power and, indeed, had increased the ratio from about 2 to 1 to 4 to 1. That was the start of all the trouble for it was then that the so-called carbon knock made itself heard for the first time, and it has been pestering automotive engineers ever since.

What Was This New Noise?

In the beginning, no one quite knew what this noise was. It was popularly believed to be the result of preignition, caused by incandescent nubs of coke or carbon that projected from the surface of the piston head and the walls of the combustion chamber when the engine was overheated. These tatters of glowing carbon supposedly ignited the charge too soon so that its explosive force was delivered against the piston face before the latter had reached the end of the compression stroke and was still rising. This occasioned a loss of power, usually measured by the motorist in reduced hill climbing capacity, because the total effect of ignition should take effect immediately after the piston has passed top dead center and is in position to be pushed down by the power stroke. Besides, it is humiliating to have a nice new car playing a dissonant anvil chorus when you are showing it off to your friends.

Whence The Word

Detonation is a "thundering down" from the Latin tonare, "to thunder," but that is not very expressive of the noise in this instance. It is really a sort of clinking effect, like the jingle of loose change and actually it consists of a series of sharp, snappy blows against the exposed metallic surfaces in the combustion chamber. In its advanced stage it does become distinctly more thunderous and it usually asserts itself when the automobile driver steps on the accelerator to muster the extra power to mount a grade or pass the car ahead. A commoner meaning of detonation is "explosion" and this is much more apropos as we shall learn later.

The term "clink" is an onomatopoeism, or initiative word—that attempts to copy the sound of dragging chains. Chains are usually associated with prisons and dungeons. Hence the slangy "clink" meaning "jail." It is one of these additions to our vocabulary acquired by associating an institution with the sounds that emanate from it. Some of the etymological master minds contend that a prison in Warwick, England, called "Clink" is the source of our word but that sort of conclusion is not worthy of rationalistic thinkers, not at least without an explanation of how and where Clink Prison came by its name.

The Otto Cycle

Before proceeding further on this topic, it will perhaps help subsequent deliberation to recall the four cycles of the Otto cycle engine which is the one that is almost universally used in automobiles today. They are as follows:

(1) Intake or suction stroke: The piston travels downward sucking in a charge of admixed air and gas through the carburetor and intake manifold into the cylinder.

(2) Compression stroke: The piston travels upward compressing the fuel and air vapors into the small compartment above the cylinder, known as the combustion chamber.

If the capacity of this small chamber is one-fourth the total capacity of the cylinder plus the combustion chamber, the engine has a compression ratio of 4 to 1. In other words, the compression ratio is simply the ratio of the original intake volume of gas and air to its volume at the end of the compression stroke.

(3) Power Stroke: The spark plug ignites the compressed air-gas mixture which expands rapidly, pushing the piston down. The piston rod actuates a crank on the main drive shaft, and the latter turns the rear wheels.

(4) Exhaust or scouring stroke: The piston travels upwards, flushing the spent gases out through the exhaust valves.

These motions are alternated in the various cylinders so that there is an almost continuous delivery of power to the drive shaft.

Effect of Compression

Now it was well known that the more the gas and air fuel mixture is compressed before ignition, the more power the engine produces; so the obvious way to a lighter, faster, better performing engine was to reduce the size of the combustion chamber in relation to the size of the cylinder.

Most present day school boys know all about this and other methods of "souping up" the engine, but in 1912, General Motors research engineers and chemists were baffled for quite

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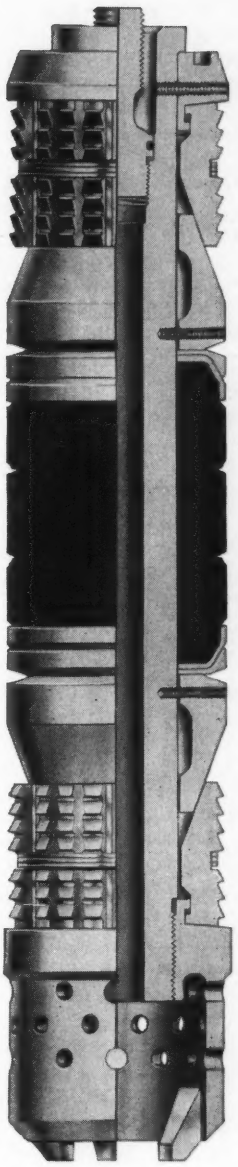

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√ CHECK THESE OUTSTANDING FEATURES:

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- Reduced premature setting
- Less drilling-out material when removed from well

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Rubber packer protected from deteriorating well fluids.

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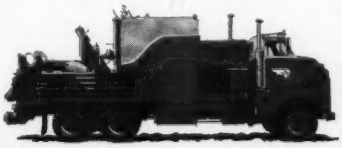

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a time when they increased the compression ratio of their experimental motor up to 4 to 1 and it immediately knocked and jangled a loud and insistent protest.

At that time, no one suspected that fuel had anything to do with the knock problem. Under the direction of Charles F. Kettering, an automotive genius, Thomas Midgley and several aides were given the job of determining the nature and cause of detonation as well as its effects. It was noted that when detonation took place, motor temperature rose quite sharply. Since light colored substances reflect heat and dark ones absorb it, the experimenters thought they would try some dark colored fuel on their obstreperous engine. They looked about for a gasoline soluble black dye, but since nothing of the kind was immediately available, they darkened their fuel by dissolving some iodine in it. This did the trick! The knock vanished like magic and in a few seconds the engine was running like a well oiled sewing machine.

Iodine And Black Dyes

Iodine, however, was not altogether desirable in an engine. It had qualities that could be very destructive at high temperatures, so the search for a better behaved gasoline—soluble black dye was continued. Quite soon thereafter one was discovered, and with a number of high executives of General Motors Corporation there to witness his moment of triumph, Thomas ran his laboratory motor on clear, straight-run Pennsylvania gasoline until it was singing like a shower of birdshot on an out-of-tune xylophone. Then he switched to a black version of the same fuel. The result was a discouraging zero. The motor kept on pinging furiously and the executives trooped disconsolately back to their ivory towers.

But scientists can learn just as much from a failure as from a success. It was obvious to Midgley and his aides that while color had no effect on detonation, iodine did have one and a beneficial one, too. There was some quality in this substance, the chemists called "a halogen" (from Greek halos, "the sea" and gen, "born of") that had a soothing influence on the jangling nerves of an irritated motor. It could not possibly be used for this purpose, because one of the peculiarities of the halogen group of elements, which also include chlorine, bromine, and fluorine, is that they form salts by direct chemical interaction with metals. It would thus be dangerous to introduce any one of them into the cylinder at the high ignition temperatures that prevail there.

More About Halogens

Iodine takes its name from the Greek ion, "a violet" plus eidos, "form." When it is heated it turns into a vapor of pronounced violet color. Chlorine is a poisonous gas which has a pungent penetrating odor that has become quite familiar to housewives because it is one of the principal components of many bleaching agents. It derives its name from Greek chloros, "light green" which is the color of the gas. Bromine is most appropriately named from the Greek bromos, "a bad smell." It not only has a bad smell but it burns atrociously and the slightest trace of vapor affects the eyes in a very painful way.

During my early days in the steel works laboratory I checked the sulphur content of metal samples by dissolving them in acid and then catching the sulphur gases that were evolved in a strong solution of bromine. This was all done in a well vented fume chamber or "stink box" as the chemist usually terms it. Sometimes the wind would blow down the vent and force bromine vapors into the lab, then I would spend the rest of the morning peering into the neck of a grain alcohol bottle in an effort to alleviate the stinging pain in my eyes. The alcohol was a good neutralizer—still is, in fact! Anyway you look at it, bromine is nasty stuff. It constantly emits rich brown, vicious looking fumes, and it should never be approached by anyone but professionals.

These halogens, indeed, are all pretty noxious. Fluorine is so called because it is made from a transparent mineral known as "fluorite" which is used to promote the melting or fusion of solids. It is derived from the Latin-fluere, "to flow." Hydrofluoric acid, a combination of fluorine and hydrogen (HF), is a fluid that is commonly used for etching glass, dissolving sand, and attacking substances that are immune to most other corrosive agents.

How It Works

It is difficult at this distance to guess what went on in the minds of these pioneer investigators. They knew that crystals of iodine were readily transformed into vapors that are considerably heavier than the mixture of vapors that constitute a charge of internal combustion engine fuel. Perhaps the rate of burning after ignition, was delayed somewhat by the presence of this heavier material, and the explosive violence of the detonation effect was reduced or even completely dissipated. . . .

Perhaps! Anyway, this experiment started one of the greatest research projects in industrial history. The objective was to find another substance that would suppress or prevent detonation without hurting the tender insides of the motor. As nearly as I can remember now some 30,000 different chemicals were tested and rejected prior to the discovery of tetra ethyl lead which has answered the refiners' and automotive designers' most important need nobly up to the present time.

It has permitted the design of motors with compression ratios as high as 12 to 1, having greater horsepower output per unit of weight, greater speeds, and better all around performance than would have been possible otherwise. I have heard whispers lately of a new compound that is being developed as a detonation suppressant but no details as to its composition or character have been disclosed yet.

Detonation In Theory

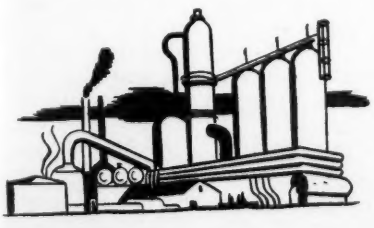
Among the theories offered in explanation of detonation, and one that seems to be acceptable to science, was that of the accelerating rate of flame propagation (spread). This in effect stated that when fuel at high pressure is ignited in a hot combustion chamber, waves of flame circle out from the point of ignition, building up abnormal pressures ahead of them. This, together with the heat accumulated in the metal parts, finally brings the unconsumed gases to a state of spontaneous disintegration, that is "a voluntary flying apart" from Latin sponte "of free will" and disintegratus, "decomposition." This gives the piston face a sharp, explosive rap instead of the normal combustion push.

The piston is unable to assimilate this sudden release of power and much of it is lost in non-essential heating of parts that should not be heated unnecessarily, which merely exaggerates the entire situation. A common example which was often cited to express the difference between detonation and normal combustion was this: If a heavy weight be suspended by some sort of cable, one can slam it lustily with a sledge hammer and scarcely make it move, but both the suspended weight and the hammer head will become noticeably hot. The same suspended weight, on the contrary, can be moved quite easily by pushing against it steadily with the hand.

Under detonating conditions, power is lost in other ways than that illustrated here. One important factor in the chain of events that constitute the Otto cycle, is the timing. Normally each cylinder is so regulated that firing takes place just after the piston has reached top dead center on the compression stroke. Then the expansion of the burning gases acts against the piston face as it travels down on the power stroke which is the ideal situation so far as power utilization is concerned. A detonating charge, on the contrary, burns just a fraction faster hence dissipates more heat. It cuts the maximum attainable speed and mileage, reduces the maximum load that the motor can pull, and in many ways is detrimental both to engine performance and the social status of the driver.

The Knock Rating System

Thomas Midgley was probably more responsible than any one man for the entire system of knock ratings now employed in the oil and automotive industries. In his efforts to find a standard measurement of gasoline knocking tendencies, which had been found widely variable, he invented an ingenious device, known as the "Midgley Bouncing Pin." This was a metal pin, set in a narrow cylinder that projected into the combustion chamber. When the engine knocked, this pin danced like mad and Midgley took advantage of the fact to make it close an electric circuit. When it bounced it made contact with another terminal and the more it bounced the more contacts it made. Every time it made a brief contact some electricity went through the circuit.



When an electric current is passed through water containing an electrolyte, that is a conductor, the water is resolved into its elements, oxygen and hydrogen. This process is called electrolysis or chemical decomposition by the use of electricity. It is quite apparent that the amount of either hydrogen or oxygen given off by the water during a run for a given time would be an indicator of the relative amount of knocking when compared, for example, with the yield during another run of the same duration and under the same conditions on another fuel.

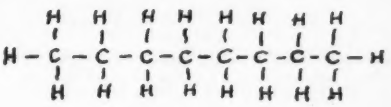
This was not an absolute measure but it did point the fact that there were differences in gasolines and it did lead the way to our present approved knock rating machines and methods. Prior to the introduction of ethyl gasoline, it was known that benzene, the first hydrocarbon of the aromatic series, was an excellent anti-knock agent and in early racing cars, a mixture of benzene and gasoline was the fuel that was used to give the drivers full advantage of high compression power.

Comparable Ratings

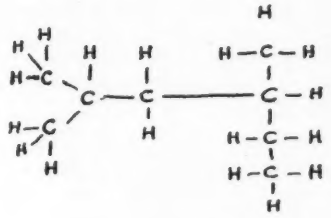
Then as studies were continued, it was learned that there were other hydrocarbons similarly endowed. The olefins had better knock ratings than the paraffins; certain paraffins performed better than others and gradually all sorts of interesting facts were disclosed. In another chapter it was noted that beyond propane, the normal paraffins with their straight chains of carbon atoms could be made to form isomers, that is compounds containing the same percentage carbon and hydrogen, but different structure and different properties.

These were the so-called side-chain or branched-chain paraffins. For example, iso-octane is a side chain variation of normal octane (C_8H_{18}), has excellent anti-knock quality and is actually the basis for the whole octane rating system. Here again are the graphic formulas of the two to show the structural differences:

NORMAL OCTANE
(STRAIGHT CHAIN)



ISO - OCTANE
(BRANCHED CHAIN)



In the meantime, a single-cylinder test engine has been devised in which the compression ratio can be varied at will and all the other factors that influence performance can be similarly controlled.

Octane Numbers & T.E.L.

The fuel under test is then matched with a blend of iso-octane and heptane. If it is equivalent in performance to a blend of 40% iso-octane and 60% heptane, it is given an octane rating of 40. If it is equivalent to 90% octane and 10% heptane, it has a 90 octane number and, of course, a fuel that is the equal of 100% iso-octane has a 100 octane number. This measure is no indication of the amount of octane in the gasoline under test as many people seem to believe, it is merely an arbitrary standard of performance.

The total effect of all this research and development effort is beyond calculation. It has meant that the oil industry has had to keep adapting its refinery methods to the production of higher and higher octane rating fuels. It has enabled automotive and aviation engineers to engage in a continuous program of improved engine design and remain in an unremitting race for world supremacy.

The importance of this supremacy has been remarkably pointed out in

two great wars, and the projection of future wars (of which it is devoutly hoped there will not be any) into the fantastic era of intercontinental ballistic missiles, guided rockets, and space travel, is simply the logical extension of this very same program.

Its significance is quite apparent in both war and peace. The industry has learned to utilize the forces of physics, chemistry, and science generally, to tailor its fuels to the exact need of the customer whether he is a pilot of an outer space ship or the proud owner of a diminutive sports car. Experience in the refining art has brought interesting new methods of reforming the hydrocarbon constituents of crude oil to produce the most desirable stocks for the manufacture of an infinite variety of commodities.

Additives, such as tetra ethyl lead, have pioneered the way to greatly improved fuel quality and in turn engine performance. Indeed, the entire study of detonation phenomena from its inception has probably done more to expand the petroleum industry to its present dimensions than any other single item or effort.

Natural Gas for Commercial Use Discovered in Alaska

The first commercial discovery of natural gas in Alaska was reported this month by Union Oil Company of California, operator of a joint exploratory drilling program with Ohio Oil Company on the Kenai Peninsula, southwest of Anchorage.

Initial test of the discovery well, Kenai I, was termed "most satisfactory," by Charles Smith, manager of operations for Union Oil in Alaska. Actual test figures were not revealed.

The initial test was made on only one of the potential gas zones penetrated during drilling of the discovery well, according to Smith. Union-Ohio have set pipe and will test an additional gas sand before completing the well.

The discovery is located six miles south of the town of Kenai and about 65 miles southwest of the city of Anchorage.

Union and Ohio plan to do some development drilling as weather permits in order to obtain additional information on the discovery area where the companies have very large acreage under lease.

Denver Office and Warehouse of Keenan Pipe & Supply Company.

Keenan Opens New Pipe Warehouse in Denver

To provide better facilities in the fast growing Rocky Mountain area, Keenan Pipe & Supply Company, one of the leading distributors of oil, industrial, plumbing and heating supplies in the West, has opened a large and completely stocked Denver office and warehouse located on a 3¾ acre tract at 4700 Dahlia Street, Denver, in the heart of the new Mile High Industrial Area, according to P. T. Keenan, president.

Elmer A. Young, Denver manager, Charles A. Robertson, assistant manager, and William J. Busha, industrial sales representative, head the modern new Denver facility. Young comes to his new post from the firm's Bakersfield office.

With headquarters in Los Angeles and branches in North Hollywood, Pomona and Bakersfield, California, Tucson and Phoenix, Arizona, Las Vegas, Nevada and Denver, Colorado, Keenan Pipe & Supply Company maintains complete stocks of a wide range of oil and industrial supplies in all locations.

"Our new Denver facility is one of the most modern of its type in the West," Mr. Keenan stated. "It marks another step forward in our growing chain of branches located in strategic areas to serve the West."

Summary of California Oilfield Operations, August 1959

During August, the total production of crude oil is estimated to have been 26,084,888 barrels, a daily average of 841,448 barrels. This is a decrease of 2,908 barrels under July, 1959.

Total stocks of crude oil and all other products in District Five decreased 844,000 barrels during the month. Total stocks at the end of August 1959 were 125,830,000 barrels. The total stock decrease for the year, up to August 31st, was 9,915,000 barrels. Inventories held in Alaska are included with 1959 figures below, the August stocks being shown in parentheses. Crude oil production in Alaska during August amounted to 581 barrels daily.

There were 76 new oil wells, with an initial daily production of 11,192 barrels, 10 gas, and 10 service wells completed during August. This compares wih 54 new oil, 7 gas, and 10 service wells completed during July.

Stocks Held in District Five by California Oil Companies
(Excluding Stocks at Service Stations and Some Sales Dist. Stations)
(Thousands of 42 Gallon Barrels)

	August 31, 1959 Total	Inc. Alaska	July 31 1959	August Changes	Aug. 31 1958
1. Crude Petroleum	35,665	(12)	36,316	— 651	41,890
2. Condensate, Natural Gasoline, LPG and LRG	1,404		1,455	— 51	1,710
3. Gasoline (Inc. Unfinished)	26,609*	(336)	27,775*	—1,166	23,600*
4. Jet Fuel	1,587	(30)	1,593	— 6	1,891
5. Kerosene	401	(12)	417	— 16	349
6. Distillate Fuel Oil	14,802	(432)	13,656	+1,146	14,752
7. Residual Fuel Oil	26,994	(91)	26,365	+ 629	32,886
8. Cracking Stocks	10,177		10,420	— 243	14,072
9. All Other Stocks	8,191	(22)	8,677	— 486	7,050
Total	125,830	(935)	126,674	— 844	138,200
* Includes Unfin. Gasoline Content of Naphtha Dist.	2,424		2,742		2,465

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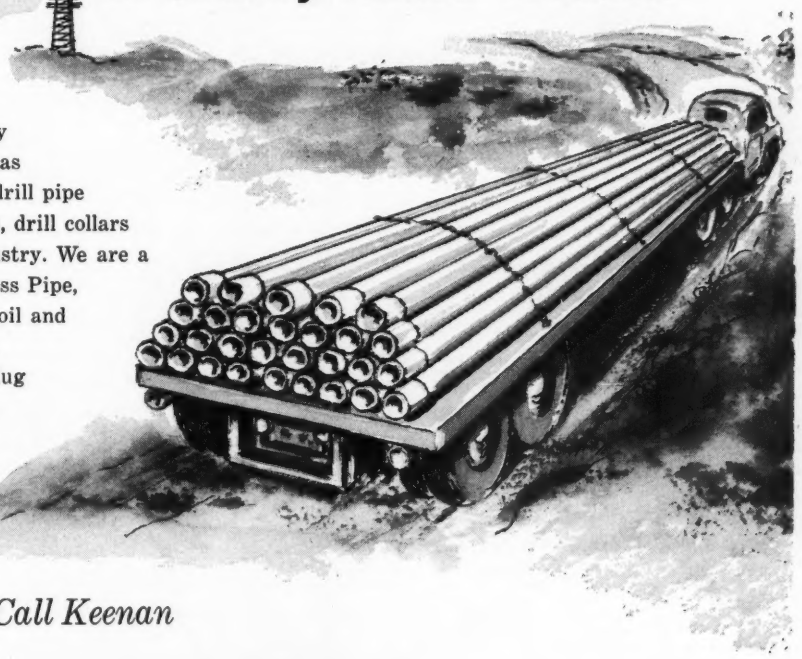
Oil Country Tubular Products



Keenan stocks substantial inventories of National Oil Country Tubular Products and in addition has available drilling bits, tool joints, drill pipe protectors, casing shoes and collars, drill collars and allied products for the oil industry. We are a leader in the distribution of Stainless Pipe, Valves and Fittings. Other quality oil and industrial lines matched by Keenan Service are Walworth lubricated plug valves and other products, Ladish's complete line of carbon, stainless and alloy welding fittings, Consolidated relief valves and Hancock forged steel valves.

Need something fast?...Call Keenan

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Personalities IN THE NEWS

Tidewater Oil Appoints Tomfohrde Home Office Transportation Manager

The appointment of **H. F. Tomfohrde** to the post of transportation manager, home office, of Tidewater Oil Company was announced recently by **George F. Getty II**, company president.

Tomfohrde, formerly manager of Tidewater's eastern division transportation and supply department, will make his headquarters in Los Angeles.

In his new post, he will develop and coordinate policies, plans and procedures covering all phases of Tidewater's nationwide transportation activities.

H. F. Tomfohrde E. C. Purtell

New Transport Dept. Manager

E. C. Purtell has been named manager of the Standard Oil Company of California's Motor Transport Department, succeeding **L. S. Bessonett**, who retires after 42 years of service with the company.

Bessonett joined Standard after early experience with pioneer automotive companies. He served as manager of the Motor Transport Department from its inception 28 years ago and was responsible for the development and direction of Standard's sizable motor fleet.

Purtell has been assistant manager of the department since 1947.

Halliburton Announces Laboratory Changes

Reorganization of part of Halliburton Oil Well Cementing Co.'s chemical research and development laboratories—and appointment of a new assistant manager—is being announced by **Francis Anderson,** laboratory manager. The Halliburton laboratory is part of the company's Technical Center at its Duncan, Oklahoma, headquarters.

Calvin D. Saunders has been promoted from group leader of the fracturing section to assistant laboratory manager. Saunders has been with Halliburton since 1946.

W. T. Malone, a former member of the fracturing section, succeeds Saunders as group leader.

Wayne Hower, who has been organic section leader, has been promoted to a newly created position of research association. He will perform fundamental research on chemical problems and developments related to Halliburton's oil field services.

Responsibilities of the former organic section supervised by Hower have been divided into two new sections, Anderson said. The groups are the chemical well stimulation section headed by **John Knox** and the water and sand control section headed by **Joe Ramos.**

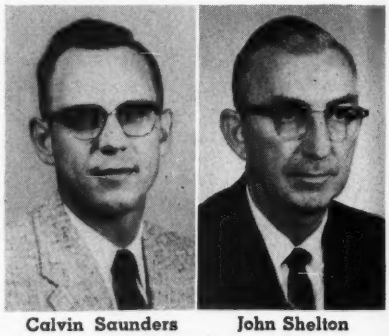
The chemical well stimulation section will handle acidizing, corrosion, surfactants and scale control assignments; the water and sand control section will handle sand and chemical control, plastics, and other materials for controlling water, including research on grouting materials.

National Tank Personnel Changes

L. S. "Spider" Allen, for the past 20 years head of the Armco Surface Casing Division of National Tank Company, Tulsa, retired October 21. Replacing Allen is **John H. Shelton.** With National since 1938, Shelton has been manager of National's West Texas Division in Midland, Texas, for the past 11 years.

Harold Jones, currently branch manager at Farmington, New Mexico, has taken over the Odessa branch. Jones joined National at Odessa in 1947 as office man. Prior to his transfer to Farmington in 1957, he served in various capacities in the West Texas and Rocky Mountain divisions.

J. D. Fowler, sales and service engineer in the New Mexico branch for the past three years, has taken over the duties of the Farmington branch manager.



Calvin Saunders John Shelton

Personnel Changes in Du Pont's Petroleum Chemicals Division

John P. Purcell has been named operations coordinator in the Eastern Region office of Du Pont's Petroleum Chemicals Division in New York City. In this capacity, he will coordinate services related to the safe and efficient handling of tetraethyl lead and other petroleum additives.

Robert B. Bothwell, who has been operations coordinator in the Eastern Region, has been transferred to the division's Gulf Coast Region as a sales service representative in the Houston, Tex., area, while **Richard R. Golding** has moved to the division's headquarters in Wilmington as a technical assistant to the operations section. Golding has been sales service representative in the north Jersey area.

R. P. (Padge) Maddox — William E. Spear

Joins Shell Oil Co.

William E. Spear has joined Shell Oil Company's Los Angeles office production department staff as senior mechanical engineer.

Spear had served as senior mechanical engineer in Denver prior to his transfer here.

He joined Shell in 1933 as a service station attendant. In 1936 he became a draftsman and later served as an engineer in the Wilmington-Bakersfield-Ventura areas. Prior to his Denver assignment, he was division mechanical engineer at Billings, Montana.

3 Sales Appointments By BJ Service

Three appointments to the new position of assistant to the sales manager have been announced by **A. M. Birnie,** vice president and sales manager for BJ Service, Inc.

Padge Maddox, formerly area sales manager headquartered in Fort Worth, Texas, moves to Houston.

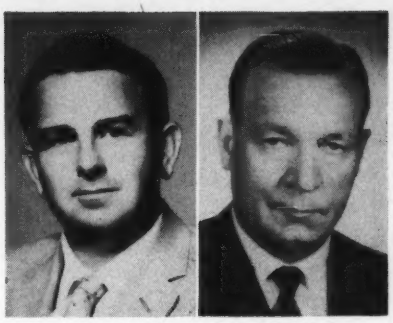
J. C. Jackson moves from district superintendent at Guyman, Oklahoma, to Tulsa, where he will assume his new position.

Austin Jones, formerly district engineer in Hobbs, New Mexico, will work out of BJ Service's Fort Worth offices.

In making the announcement, Birnie stated that this was another forward step in the company's long-range expansion program.

Johnston Testers Promote B. J. Graham

Among promotions and reassignments within the sales division of Johnston Testers, Inc. announced by Johnston President **D. C. McCann** is that of **B. J. Graham** who has been promoted to manager of the Marketing Division.



A. T. (Austin) Jones — J. C. Jackson

Elected to Board of Directors

Walter J. Brunmark was elected to the board of directors of Southern California Petroleum Corporation at the last director's meeting to fill a board vacancy.

Brunmark is vice president and director of May Department Stores Company, and general manager of the Los Angeles Division. He is a director of Pacific Press, Los Angeles, of which Phillips and Van Orden in San Francisco is a subsidiary. Brunmark is also a director of Security Title Insurance Company, Los Angeles.

— TUESDAY —

DECEMBER 8, 1959

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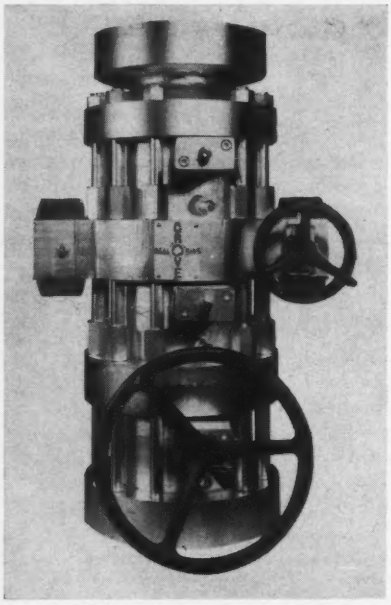


2" x 2" 10,000-lb. W. P. Dual Completion Grove VALV-PAK Christmas tree valve assembly. Incorporated in this new Christmas tree valve assembly are double master valves, a swabbing valve and wing valves. This VALV-PAK also features an integral dual tee and dual top adapter.

New Well Head Valve Assembly Offered by Grove

Grove Valve and Regulator Company (Oakland, California) will soon market a new piece of equipment, the Valv-Pak, which, it reports, will revolutionize valve design for production of gas and petroleum.

The Valv-Pak is a new breed of well head valve assembly which is less than half the size of conventional types. Besides its compactness, it is believed petroleum and gas producers will welcome the new design because it permits rearrangement of valves as characteristics of the well change. In the past, when a well's rate of flow, internal pressure and other characteristics were altered, entirely new assemblies were often needed.

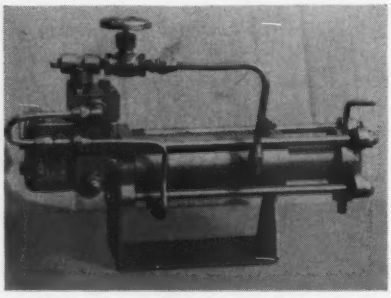
Moreover, the Valv-Pak design permits worn components to be changed in the field. Previously, such replacements could be made only after costly downtime and production losses. In cases where "unitized" assemblies were used, the entire unit had to be replaced.

Grove engineers, emphasizing this advantage, estimate that the Valv-Pak can be assembled or disassembled in the field in one hour or less.

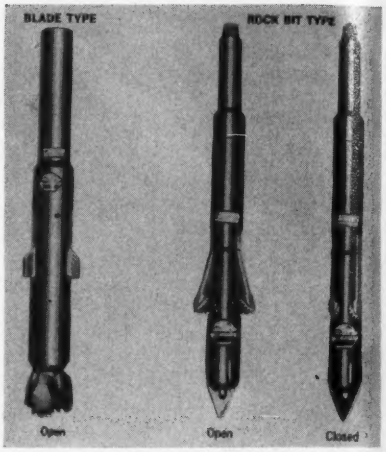
Commenting on other features of the new design, company president M. H. Grove pointed out that the Valv-Pak is "the most compact assembly of its kind. Because of this, it is much less expensive to install, lighter and easier to work with than other Christmas tree valves. It is a development," continued Mr. Grove, "of major significance for both oil and gas production service."

The Valv-Pak will be available in any combination of master valves, wing valves, tees, and bores tailored to meet individual needs. Bore sizes range from 1½" through 4". Working pressures: 2,000 to 10,000 pounds psi. Flange connections and bore seals can be supplied to meet any specification. Incorporated in the Valv-Pak design are all of the Grove features identified with protected Seal-O-Ring gate valves. The "O" ring design eliminates the need for lubrication and significantly cuts maintenance costs.

The Valv-Pak is offered in single, dual, triple and quadruple completion Christmas tree components.



Texsteam Corporation of Houston, Texas, announces a new TXT Glycol pump which operates on a minimum amount of gas. The only fuel consumed in powering the pump is the very small amount of entrained gas. Capacity of the pump ranges from 6 to 60 gallons per hour.



Servco Expanding Hole Opener

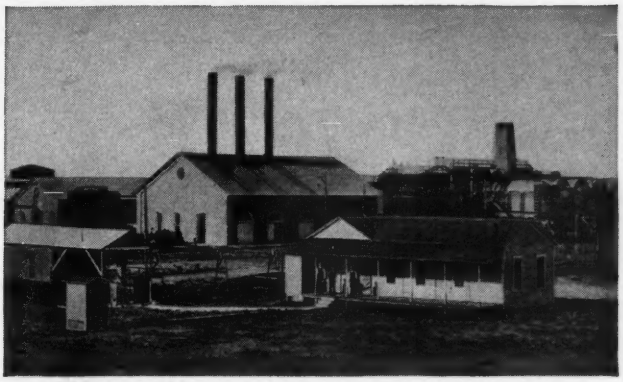
New Servco Expanding Hole Opener Available in Rock Bit or Blade Types

This new Servco tool is run through casing to enlarge the hole for such subsequent operations as gravel packing, cementing, landing casing or liners, wall scraping, or for any purpose where a larger hole diameter is desired.

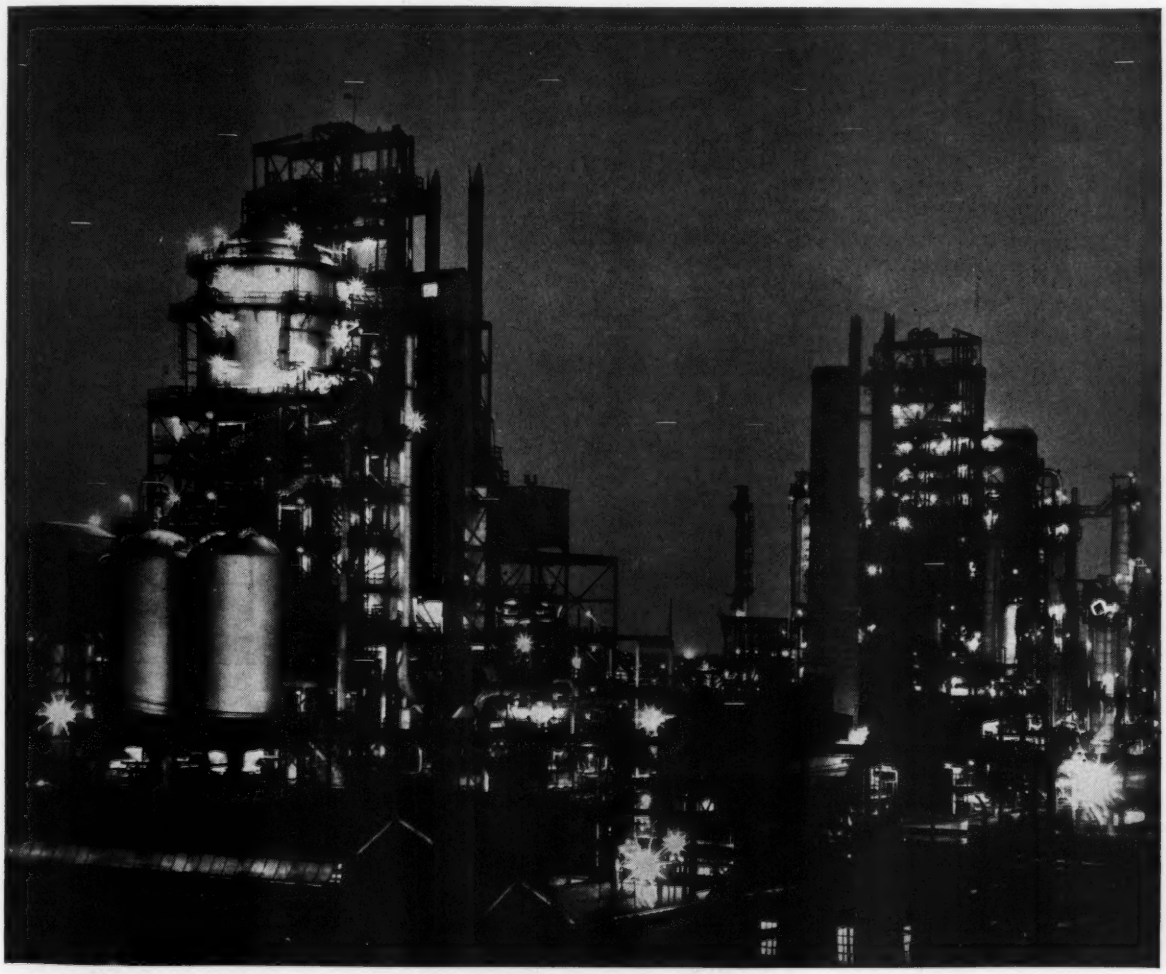
Two types of the new tool are available: (1) *Rock Bit Type*—for enlarging the drilled hole up to twice the drilled diameter in soft or hard formations to provide for cementing, gravel packing, casing clearance, etc. This type drills in the same manner as a rock bit.

(2) *Blade Type*—to open the drilled hole to a larger diameter simultaneously with the drilling operation, in soft to medium hard formations. Full fluid flow passes through the jets of standard bits; none is bypassed. Hole size can be increased to approximately ¼th greater than the drilled hole. Blades are dressed with Servcoloy "W", a special tungsten carbide dressing material which greatly extends blade life, assuring a gauged hole.

Two views of progress . . . 57 years apart



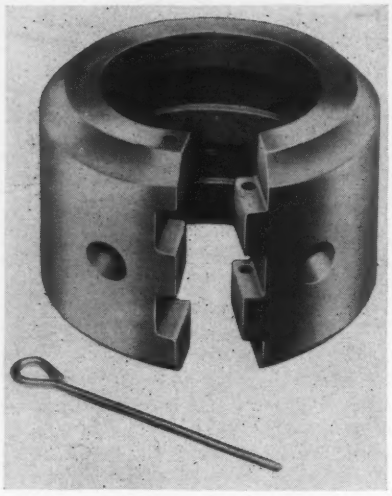
YESTERDAY. Texaco's first refinery at Port Arthur came into being in 1902 to turn the black crude oil — newly discovered in quantity — into useful products for mankind. Produced in simple stills, the first products were kerosine, naphtha, asphalt and primitive lubricants.



TODAY. At Port Arthur, and at 11 other major Texaco refineries in the United States, ultra-modern chemical wizardry uses many methods to produce constantly improved gasolines, perfected lubricants, and a myriad of other petroleum products. Because these products are so vastly improved, you can drive a more powerful car — jet planes can fly faster and farther — industry can operate more efficiently. And because it has constantly planned ahead, Texaco's growth has been continuous.

TEXACO

. . . CONSTANT PROGRESS IN OIL'S FIRST CENTURY



Grip-Lok Protector with Locking Pin

New Casing Protector From BJ Tools

Grip-Lok, economy model latch-on protector with locking pin, was recently placed on market by Byron Jackson Tools, Inc. Protector is of all-purpose synthetic rubber, bonded to a hinged steel inner cage to form a series of interlocking faces at the latching ends. The locking pin drops through the compound hinge element to hold the protector securely to the drill pipe.

Grip-Loks can be installed or removed by one man in less than 10 seconds, using two simple tools—an Installation Tool and a Pin Pull-Out Tool. Manufacturer claims that Grip-Loks may cost less than conventional stretch-on type protectors where removal and reinstallation costs are involved. Grip-Lok Protectors are 5" in length; are available for all drill pipe sizes from 2⅞" to 5½".

BAKERLOK... Instead Of Welding

BAKERLOK Thread Locking Compound eliminates the need to risk the harmful effects of welding in order to lock shoes, collars and couplings on casing. The results of thousands of field applications prove this beyond a doubt.

Facts about this remarkable compound are contained in a well prepared folder. Write to Baker Oil Tools, Inc., P. O. Box 2274, Terminal Annex, Los Angeles 54, Calif.

A New Concept In Casing Equipment

The New Insert Float Valve is now being made available by Halliburton Oil Well Cementing Company. Main features of the valve are economy and smooth, dependable operation.

Designed to withstand pressures up to the collapse strength of J-55 casing in all weight ranges, the valve saves money with its easily drillable aluminum valve seat; saves time because of simple installation and because it's inserted inside the pipe, there's no added length to the casing string.

The body of the valve is installed by use of a special wrench into either long or short standard API 8-round thread couplings with the valve body sealing between the ends of the casing joints. Only one size valve body is required for weight ranges in its O.D. casing size.

When the Insert Float Valve is made up, usually one or two joints above the guide shoe, a rubber ring on the top side of the float seat provides the seal for the insert float at the coupling point. The flapper valve has a rubber sealing ring that helps provide a fluid tight seal and is held close by a stout coil spring while running in and on completion of cementing operations. One or more insert valves may be run in the same casing string.

A companion product to the new valve is the Insert Self Fill-Up Float Valve which combines the Insert Float Valve with a simple self fill assembly . . . a predetermined fixed-size orifice tube of plastic material.

Fill-up orifice tubes for the valve are inserted with ease and are available in a wide range of sizes. The orifice tube is tripped by dropping a ball from the surface to seal off the tube so it can be pumped out, converting it to a float valve.

Halliburton's Insert Self Fill Up Valve offers these features: Circulation can be established through the fill-up tube without tripping the valve; Self Fill-Up units operate efficiently in muds containing a high percentage of lost circulation material; and in stage cementing operations, the unit may be used below the Halliburton "DV" Multiple Stage Cementer.

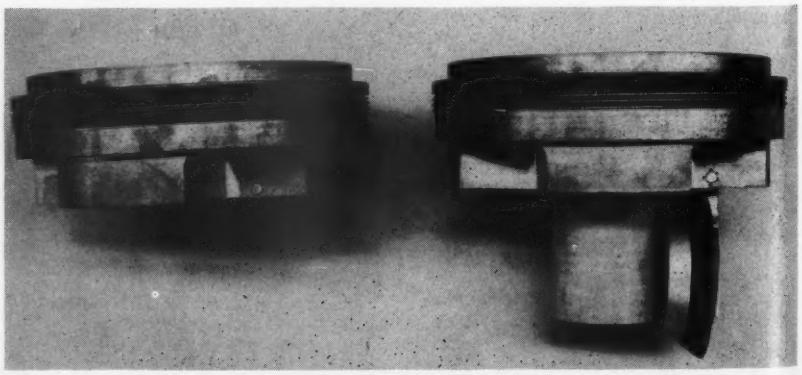
Both the Insert Float Valve and the Insert Self Fill-Up Float assembly have performed successfully in extensive tests conducted in the Texas Panhandle and Kansas oil fields, where some of the toughest fill-up problems in the United States have been encountered.

These two new products are scheduled to be available for distribution in the Texas Panhandle area in a range of the most popular sizes from 4½" through 13⅜" in November and available on a nationwide scale early in 1960.

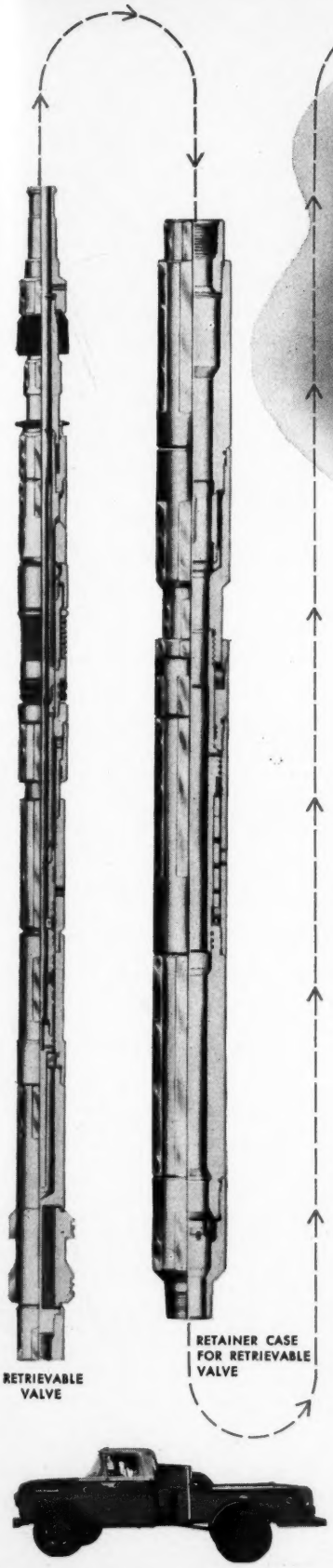
Represented Oil Women At D. & D. Convention

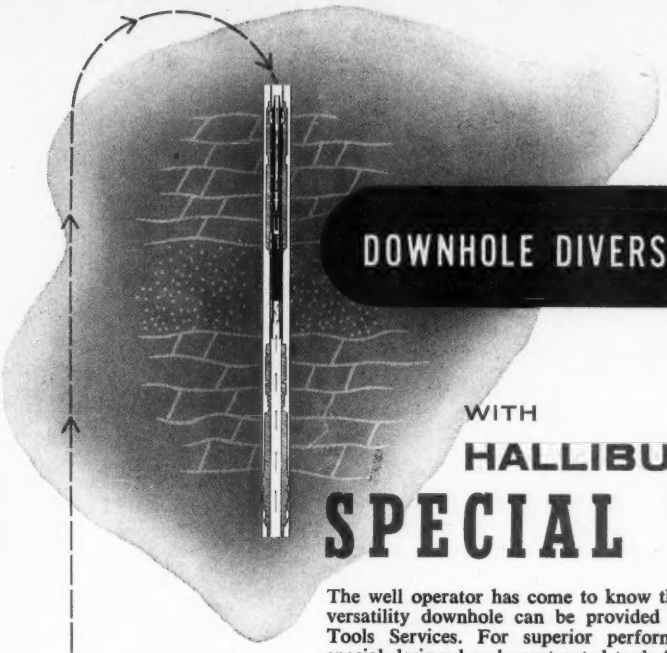
Mrs. Robert Steinmeyer, president of the Desk and Derrick Club of St. Louis, Missouri, and senior secretary at Petrolite Corporation's Research Center in Webster Groves, Missouri, represented St. Louis oil women as delegate to the eighth annual convention of the Association of Desk and Derrick Clubs of North America that convened in San Antonio, Texas, October 2 and 3.

Sixteen other St. Louis Desk and Derrick members attended the convention where approximately 1500 oil women from the United States and Canada met.



Halliburton Oil Well Cementing's new Insert Float Valve (left) and the Insert Self Fill-up Float Valve Float Assembly (right).





DOWNHOLE DIVERSIFICATION...

WITH

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SPECIAL TOOLS

The well operator has come to know that maximum operational versatility downhole can be provided with Halliburton Special Tools Services. For superior performance Halliburton offers special designed and constructed tools for special well conditions ... backed by Halliburton's "three-million downhole service job experience."

HALLIBURTON RETRIEVABLE VALVE TESTER

Developed for use with Halliburton Retrievable Test-Treat-Squeeze (RTTS) Packer for a formation test to permit subsequent operations of treating, squeezing, perforating or further testing ... *with only one trip into the hole!*

The Retrievable Valve Tester is composed of two basic assemblies – The Retrievable Valve, for opening and closing positions for formation testing – The Retainer Case, to provide a seat for the Retrievable Valve.

Retainer Case is run in tubing above "RTTS" Packer and is an integral part of tubing string during all operations. Valve is operated by right hand tubing rotation when set in Retainer Case. Setting blocks lock the Valve in the Case preventing Valve from being forced up tubing from pressure below. Valve is released from Case by a 5-position sliding valve which is set in close position; and is removed by wire line or reversed circulation after test; leaving full opening through tubing string.

A pressure recorder attached to Valve and locked in place in Retainer Case before going in hole offers many operational benefits:

- Formation testing with complete closed-in-pressure
- Allows removal of Valve and pressure recording device to check bottom hole pressure ... without unseating packer
- Permits a continuous flow test
- Application of stimulation treatment
- Downhole operations can be repeated on multiple zones ... *with only one trip into hole*

RUNNING CASE WITH STRAINER FOR PRESSURE RECORDING GAUGE...

Serves as a protective case for running Pressure Recording Gauge with Retrievable Valve Tester. Attached to lower end of Valve, permits removal of Gauge with Valve for examination of pressure chart recordings immediately after test is completed.

For *better* well services—*routine or special*—Halliburton provides "SPECIAL TOOLS FOR SPECIAL JOBS"... call your local or district Halliburton Representative today for Special Tool Services whenever or wherever the need occurs.

HALLIBURTON
SPECIAL TOOLS SERVICES
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"284 SERVICE CENTERS–JUST MINUTES AWAY FROM YOUR WELL"

Standard Plans Second Summerland Drilling Platform

Plans for construction of a second drilling platform on the State offshore oil lease at Summerland, California, have been announced by Standard Oil Company of California, Western Operations, Inc.

The new platform, which will cost in the neighborhood of $3,000,000 will have facilities for drilling up to 24 wells, two at a time if desired. It will be positioned approximately 1¾ miles from the existing platform in water 106 feet deep.

Standard is operator of the 5500-acre Summerland lease for itself and Humble Oil and Refining Company. A discovery well was completed from the first platform on the lease last November and development drilling has since been continuing.

Fabrication of the basic tower section for the huge new unit is under way at Todd Shipyards Corporation in San Pedro. The tower is scheduled to be floated to its site early next year and company engineers estimate the completed platform will be ready for operation by midyear.

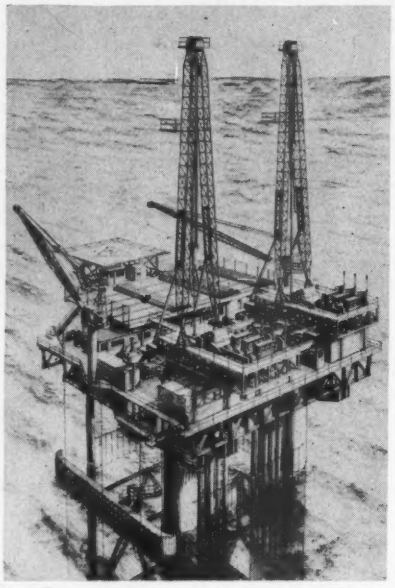
On completion Summerland No. 2 will measure 217 feet from the ocean's surface to the tops of its two derricks. Its main deck, 120 feet square, will be located 58 feet above water level. The twin derricks, 136 feet tall, will be supported 23 feet above the main deck.

Over-all, the structure will measure 330 feet from the tops of the derricks to the bottoms of its legs, which will be sunk seven feet into the ocean floor.

Design of the new platform differs from that of Summerland No. 1, and the method for erecting the tower at the drilling site will likewise be different, the company disclosed.

The No. 2 tower structure will be of a later and more versatile design than the No. 1 platform. The new design is applicable to deeper installation depths and lends itself to sites with relatively thick overburden, Company engineers explained. No. 1 rests on solid shale; but No. 2 will have to be imbedded in the soft overburden that lies 50 feet thick atop the shale at that point.

A submarine electric cable will be installed to furnish auxiliary electric power to the platform. Pipelines will be installed between No. 2 and the first Summerland platform to move No. 2's production through lines already connecting No. 1 with the shore.



Artist's conception of Summerland No. 2, offshore oil drilling platform to be erected southeast of Santa Barbara by Standard Oil Company of California, Western Operations, Inc. This facility, costing in the neighborhood of three million dollars, will be the second platform to be constructed by Standard for development of the State offshore lease held jointly with Humble Oil and Refining Company. Standard drilled discovery well from first platform last November and development of the lease is continuing.

Mobil Applies New Methods In Secondary Recovery

A gigantic project to get hard-to-recover oil out of the ground has just been started in a 46,000-acre section of the huge Pembina oil field in Alberta, Canada, it was announced by Mobil Oil Company.

One of the newest techniques of secondary recovery, "miscible-phase displacement," will be used in a 13,000-acre center section of the area involved. It is expected to facilitate recovery of 152,000,000 barrels of oil, which is 60 per cent of the oil in the ground. Using primary methods of recovery, only 40,000,000 barrels of oil would be produced.

Mobil Oil of Canada, Ltd., which owns a large number of wells in the area, is acting as operator of the project for itself and for a number of other companies having oil wells in the area.

In miscible-phase, liquid petroleum gas (LPG) is injected into some of the wells in the field. The LPG, which is "miscible" or soluble in oil, dissolves in the oil trapped in pores in the rock, making the oil more fluid. Dry natural gas is then pumped in behind the LPG to maintain the pressure that brings the oil to the surface.

The expected recovery in the area to be water-flooded is 182,000,000 barrels, or about 40 per cent of the oil in the ground. Thus, Mobil estimates total recovery at about 334,000,000 barrels through use of the two different secondary recovery methods. This would be more than three times as much oil as would be recovered using primary methods alone, and it is about 50 per cent of the total amount of oil estimated to be underground in the 46,000-acre tract.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF

California Oil World published twice-monthly at Los Angeles 57, California for October 1, 1959.

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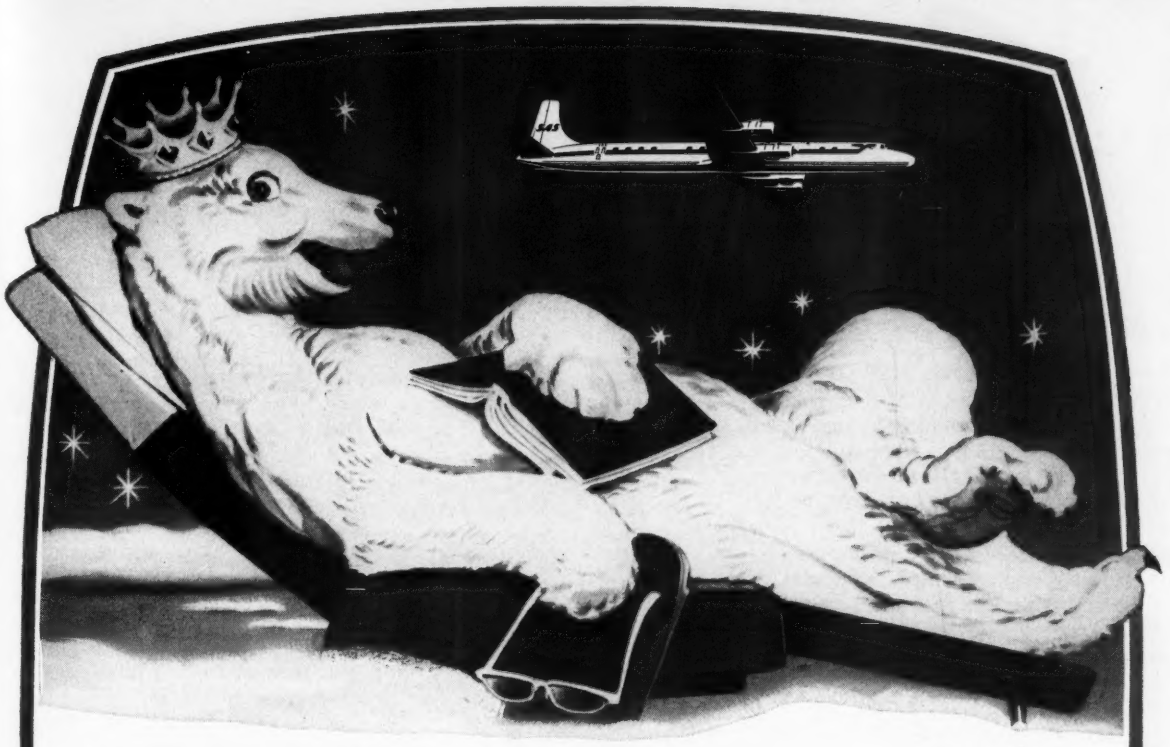
M. KINZIE MILLER
(Signature of President)

Sworn to and subscribed before me this 25th day of September, 1959.

(SEAL) M. E. HUSS

(My commission expires Sept. 4, 1960)



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LOS ANGELES BASIN

New Orange County Discovery

Humble Oil & Refining Co. completed Clarence C. Reed et al No. 1 as a new field discovery flowing 65 b/d of 54.4 gravity oil, cutting 0.1 per cent. Flow pressure was 100 psi through a 19/64" bean. The discovery well is located in the northwest quarter of Section 35-8s-7w, three miles north of San Clemente and two miles south of Texaco's O'Neill Estate No. 1 well completed in 1954 flowing 15 b/d of 46.0 gravity clean oil. Humble's discovery well was drilled to a total depth of 7992 feet and plugged back to 5934 feet. 4½" casing was cemented at 5934 feet and gun perforated 5890-5862 feet.

Inglewood Deep Test

Humble Oil & Refining Co. has staked a location for Buckler Community No. 1, 350 feet north and 361 feet east from the southwest corner of Section 16-2s-14w. The test is on the southeast plunge of the Inglewood field, and is programmed as a 13,000 foot test.

Montebello Wildcat Test Abandoned

Whittier Narrows Oil Co. abandoned Beverly Road Operating Unit No. 1 after drilling and coring to a total depth of 7056 feet. No tests were run on the well, located near the center of Section 12-2s-12w east of the Montebello field.

Olinda Completion

Shell Oil Co. completed Columbia No. 44 flowing 275 b/d of 33.0 gravity oil cutting five per cent through a 20/64" bean with pressures of 220/860 psi. The well was drilled to a total depth of 5444 feet and plugged back to 4313 feet. 5½" casing is cemented at 4040 feet. The well is located in Section 8-3s-9w.

Inglewood Shallow Test Abandoned

Standard Oil Co. abandoned Baldwin-Cienega No. 322 at a total depth of 1120 feet. Sidewall samples were taken and an electric log run on the well, located in Section 17-2s-14w.

Town Lot Test

Union Oil Co. has staked location for Union-Signal-Pacific Electric No. 1, 180 feet south and 170 feet west from the intersection of Pico Blvd. and Tremaine Street, in the southwest quarter of Section 27-1s-14w. The drill site is 1¼ miles south of the Old Salt Lake Field.

Richfield Test Abandoned

Standard Oil Co.'s Anaheim-Union Two No. 6 located in the southwest quarter of Section 34-3s-9w was abandoned at a total depth of 4375 feet. An electric log was run but no tests were made.

Riverside County Wildcat Test

Wally M. Taylor, Wm. M. Patten and O. B. Pelt have staked a location for T. P. Government No. 1, a wildcat test, in the southwest quarter of Section 7-3s-7w. The test is approximately 3000 feet east of the Chino-Mahala production, in Riverside County.

NORTHERN CALIFORNIA

Butte County Gas Test

In the Durham area, Standard Oil Co. has staked a location for T. W. Rodgers No. 1 in the northeast quarter of Section 6-20n-1e, ½ mile northeast of its Donahoe Fee No. 1, a gas producer.

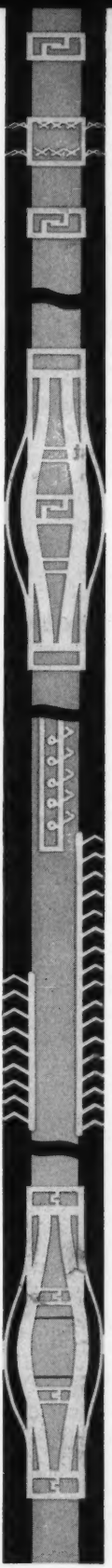
Stone Lake Area Wildcat

E. B. Towne of San Francisco has awarded a contract to the Brown Drilling Co. for the drilling of Herzog No. 1, an 8000 foot gas test four miles north of the Thornton Gas Field. Location of the test is in the southwest quarter of Section 2-5n-4e.

Walnut Grove Test

Standard Oil Company, Operator, has staked location for McCormack-Williamson No. 5 approximately 2100 feet north and 2350 feet east from the southwest corner of Section 25-5n-4e in Sacramento County. E. L. Doheny has a half interest in the play. The well will be drilled to around 8300 feet.

Drilling crew on Union Pacific Railroad's Well No. E-103 at Terminal Island. (Terminal Drilling & Production Company contractor). Left to right: Ed Cooney, head well puller; R. T. Peterson, derrickman; Ralph Newman, floorman; E. E. Sharp, floorman; and E. C. Duroy, "Hydro-Test" foreman.



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East Tracy Wildcat Abandoned

Signet Operating and Exploration Co. abandoned McMullin No. 1 at a total depth of 6985 feet. An electric log was run but no tests were made. The well was located in the southwest quarter of Section 23-2s-6e, five miles north of the Vernalis Gas production.

Colusa County Gas Test

Standard Oil Co. is grading rig site for Zumwalt No. 1, a gas test located in the southeast quarter of Section 14-17n-3w, six miles east of the Compton Landing Gas Field. The test will be drilled to about 6500 feet.

Arbuckle Test Abandoned

Occidental Petroleum Corp. has abandoned Arbuckle Unit JJ No. 1 at a total depth of 7183 feet. The test was located in the southwest quarter of Section 12-13n-2w. The company is ready to drill Arbuckle Unit KK No. 1, a 7200-7500 foot test, in the southeast quarter of Section 22-14n-2w.

Tehama County Test Abandoned

Texaco Inc. abandoned Vina Core Hole No. 1, a prospect hole near Vina in the southwest quarter of Section 18-24n-1w, in Tehama County. The test was drilled to a total depth of 5000 feet.

Rio Vista-Thornton Test

Kent Petroleum Corp. (formerly Dumm Brothers Petroleum Corp.) has received a farm-out lease from the Humble Oil & Refining Co. to drill a gas well in the Rio Vista-Thornton area in Northern California. Embracing 1300 acres, the lease involved in the agreement is located immediately northwest of recent gas discoveries by the Brazos Oil & Gas Co. and is surrounded by holdings of Standard, Doheny, Amerada, Honolulu, Union, Texaco and Superior. Kent Petroleum's engineers are now negotiating with Humble to set the location of the well and expect to move in late this month.

Stanislaus County Test Abandoned

In the Manteca area, 18 miles east of the Tracy Gas Field, Christiana Oil Corp. abandoned Williams No. 1 at a total depth of 5490 feet. The well was located in the southeast quarter of Section 23-2s-8e.

COASTAL AREA

East Ventura Avenue Test Abandoned

Standard Oil Co. abandoned Standard-Lloyd-Sexton No. 1 after drilling and coring to a total depth of 13,597 feet. The test was located on the east plunge of the Ventura Avenue Field in Section 29-3n-22w.

Offshore Test Suspended

Offshore from Cojo, Phillips Petroleum Co. suspended operations on Phillips Petroleum-Pauley et al-State 2207 E. T. No. 5 at a total depth of 3905 feet. The test is located in projected Section 15-4n-34w. Well No. 3 in projected Section 11-4n-30w, offshore from Naples, is drilling below 3500 feet and well No. 6 in projected Section 13-4n-34w, offshore from Cojo, is drilling below 2000 feet.

South Mountain Completion

Shell Oil Co. completed Saticoy No. 17 as a dual completion flowing 895 b/d of 36.0 gravity clean oil from the Upper Zone and 562 b/d of 34.5 gravity oil, cutting one per cent, from the Lower Zone. Perforations open to production are from 8287-8854 feet and 9484-10,730 feet. Located in the northwest quarter of Section 22-3n-21w, in the Bridge area, the well was drilled to a total depth of 11,536 feet and plugged back to 10,730 feet.

Rincon Island Development

Richfield Oil Corp. is preparing to drill two more wells on the Island offshore from the Rincon Field. Wells No. 30 and No. 32 are both located in Section 13-3n-25w. Well No. 67 was completed from a total depth of 2465 feet flowing 68 b/d of 29 gravity clean oil. 8⅝" casing is cemented at 2283 feet.

South Mountain Field Completion

Humble Oil and Refining Co. completed Ray R. Sence et al No. 32 pumping 50 b/d of 16.0 gravity oil, cutting 50 per cent water. Drilled to a total depth of 7271 feet, 4½" casing was cemented at 6311 feet and gun perforated from 6289-5892 feet. The well is located in the southwest quarter of Section 30-3n-20w. Ray R. Sence et al No. 33, also in Section 30, was abandoned at a total depth of 6617 feet.

Bardsdale Test for Atlantic

Atlantic Oil Co. is drilling below 3000 feet on Burson No. 4, a proved field well, located in the southwest quarter of Section 6-3n-19w.

SAN JOAQUIN VALLEY

Trico Gas Field Activity

Standard Oil Co. has staked location for two wells in the field. Burson No. 4 will be drilled in the northeast quarter of Section 28, and Tulare Farms Lease Two No. 7 in the southwest quarter of Section 35, both in 24s-23e. Trico Oil and Gas Co. is preparing to drill Daniel No. 58-A, a 2500 foot test, located in the southeast quarter of Section 22-24s-23e.

Carrizo Plains Test

Texas Crude Oil Co. of Fort Worth, Texas, is preparing to drill its first well in California, Grayson Owen No. 67-18, located in the southeast quarter of Section 18-31s-19e in San Luis Obispo County. H. F. Danberg of Long Beach will be the engineer on this 7500 foot test.

Guijarral Hills Well Suspended

Standard Oil Co. suspended operations on Well No. 502-35F at a total depth of 10,334 feet. On a test of the interval 10,264-10,334 feet, gassy salt water was recovered. The well is located in the northwest quarter of Section 35-20s-16e.

There are six wells active in the field. Lloyd A. Harnish, Operator, is drilling below 8500 feet on Allison E-82B-34F in Section 34-20s-16e. Standard Oil Co. is deepening Well No. 505-35F and No. 506-35F, both in Section 35-20s-16e. Sunray Mid-Continent Oil Co. is deepening three wells, Allison E-85-34, Fred Smith E-85-34, and Fred Smith E-87-34, all in Section 34-20s-16e.

North Tejon Wells Tested

Reserve Oil and Gas Co. is preparing to run liner and complete W.T. No. 342-19 after running an open hole test on which the well flowed 850 b/d clean oil and 1085 mcf of gas from the interval 11,575-11,772 feet. Located in the northwest quarter of Section 19-11n-19w, the well was drilled to a total depth of 11,772 feet and has 7" casing cemented at 10,772 feet. Well No. 352-20, located in the northeast quarter of Section 20-11n-19w, is drilling below 11,915 feet. On a formation test of the interval 11,690-11,816 feet, the well flowed 450 b/d of 33.8 gravity clean oil through a 18/64" bean with a flow pressure of 1000 psi.

Buttonwillow Gas Test

Carr and Wrath are grading rig site for Davis et al No. F4-6, a 2000 foot gas test, located in the southeast quarter of Section 6-28e-23e, approximately 2000 feet west of production.

Mountain View-Arvin Completion

Verde Enterprises, Operator for Ancora Corp., completed Union-Signal-Ancora-Tipton-Stockton No. 42-35 flowing 150 b/d of 33.0 gravity oil, cutting 5.0 per cent mud and water, through a 22/64" bean. The well, an extension test located in the northwest quarter of Section 35-31s-29e, was drilled to a total depth of 8450 feet and cemented 5½" casing at 8256 feet. The casing was gun perforated at intervals within 8103-7880 feet.

Belgian Anticline Extension Test

The Ohio Oil Co. is preparing to drill F. E. Smith Government No. 7 located in the southwest quarter of Section 14-30s-21e, approximately 1000 feet north of present production.

Madera County Gas Test

Imperial Development Co. is grading location for Imperial No. 1 in the northwest quarter of Section 34-12s-15e. The well, a 5000 foot wildcat test, is five miles northwest of the Gill Ranch Gas field. C. A. Ray of Bakersfield is president of the company.

South Coles Levee Gas Tests

Union Oil Co is preparing to drill two gas tests in the field. Kernco No. 47X-2 will be drilled in the southwest quarter of Section 2-31s-25e, and Kernco No. 64X-11 will be drilled in the northeast quarter of Section 11-31s-25e. Both tests will be drilled to approximately 7000 feet.

North Coles Levee Completion

Richfield Oil Corp. completed C.L.-A No. 35-28, a field well, flowing 350 b/d of 34.0 gravity oil, cutting 0.2 per cent through a 15/64" bean, with 820 psi flow pressure. Gas was gauged at 330 mcf per day. Located in the southwest quarter of Section 28-30s-25e, the well was drilled to a total depth of 9375 feet and cemented 7" casing at 9188 feet. A 5½" perforated liner is hung at 9373 feet.

Paloma Activity

The Superior Oil Co. has abandoned KCL No. 45-11 at a total depth of 12,507 feet. The well, located in the northwest quarter of Section 11-32s-26e, was two locations south of present production.

Tidewater Oil Co. will drill KCL No. 86-3 in the southeast quarter of Section 3-31s-26e, about 3½ miles northeast of the Paloma Field and 2½ miles southwest of the Old River Area.

North Tejon Test for Standard

Standard Oil Co. has staked location for Muzinich Community No. 318-16, an extension test of the North Tejon Field, in the southwest quarter of Section 16-11n-19w.

Reserve Oil and Gas Co. will drill W-T No. 332-19, a 12,200 foot test in the North Tejon Field, located in the northwest quarter of Section 19-11n-19w.

OTHER AREAS

Nevada

Churchill Drilling Corp. logged sufficient showings in Reggie No. 1 to warrant the running of a string of 5½" casing. The test was drilled to a total depth of 3300 feet and is waiting for delivery of the casing. Location of the test is in the northeast quarter of Section 13-18n-28e, three miles south of the town of Fallon.

Churchill Drilling Corp. is preparing to drill Lillian-Sig No. 1, a 7000 foot test in Churchill County, approximately twelve miles north of Fallon near Section 31-21n-29e.

Arizona

In the East Boundry Buttes area, E. B. LaRue recovered salt water on a test of the Lower Hermosa and abandoned Navajo No. 1 at a total depth of 6917 feet. The test was located in the northwest quarter of Section 18-40n-28e, Apache County.

Texas-American Oil Corp.'s Fitzgerald No. 2 located in the northwest quarter of Section 22-20n-25e was abandoned at a total depth of 1327 feet. Well has been converted to a water well.

Alaska

Standard Oil Co. and Richfield Oil Corp. drilled to a total depth of 11,982 feet on Swanson River Unit No. 32-15 and cemented 7" casing at 11,959 feet. Preparations are underway for a production test. The well is located on the Kenai Peninsula in Section 15-8n-9w.

General Petroleum Corp.'s Bristol Bay area wildcat, Great Basins No. 2 in Section 35-25s-50w, is drilling ahead below 3500 feet.

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LAUGH

Hostess: "I hope my husband wasn't rude when he asked you to play."

Pianist: "Oh, no, he only asked that I do not play one tune."

Hostess: "And what was that tune?"

Pianist: "He said don't play 'For the Love of Mike.' "

As they were having a heart-to-heart talk over a cup of coffee, the girl in the green jumper said with a sigh: "I have tried everything under the sun to make him propose to me. What else can I do?"

The girl in the pink frock looked at her knowingly. "Try under the moon," she said.

"Dad, why can't a man have more than one wife?"

"As you grow older, my boy, you will learn that laws are written to protect those incapable of protecting themselves."

"I always wash my hair in beer."

"Does that help?"

"No, but I've got the happiest dandruff in town."

A man got on the bus with a fifty pound bomb under his arm, sat down and calmly put it on his lap.

"What's that you're holding?" asked the conductor.

"It's a delayed action bomb I'm taking to the police station," was the answer.

"You idiot!" said the worried conductor. "You don't want a thing like that on your lap! Put it under the seat!"

"Bill finally married that red head."

"What got into him?"

"Buckshot."

The day the circus was in town the teacher got this note: "Please excuse Thomas from school. He has a bad cold in his bronch tubes and his scientists hurt. (Signed) My Mother."

THIS

The officer stopped the man going down the street clad in a barrel. "Are you a poker player?" he asked.

"No, I'm not," the man replied, "but I just left a bunch of fellows who are."

OFF!!

Bride—"And when you told Jack that I was married, did he seem sorry?"

Her best friend—"Yes. He said he was sorry, even though he didn't know your husband personally."

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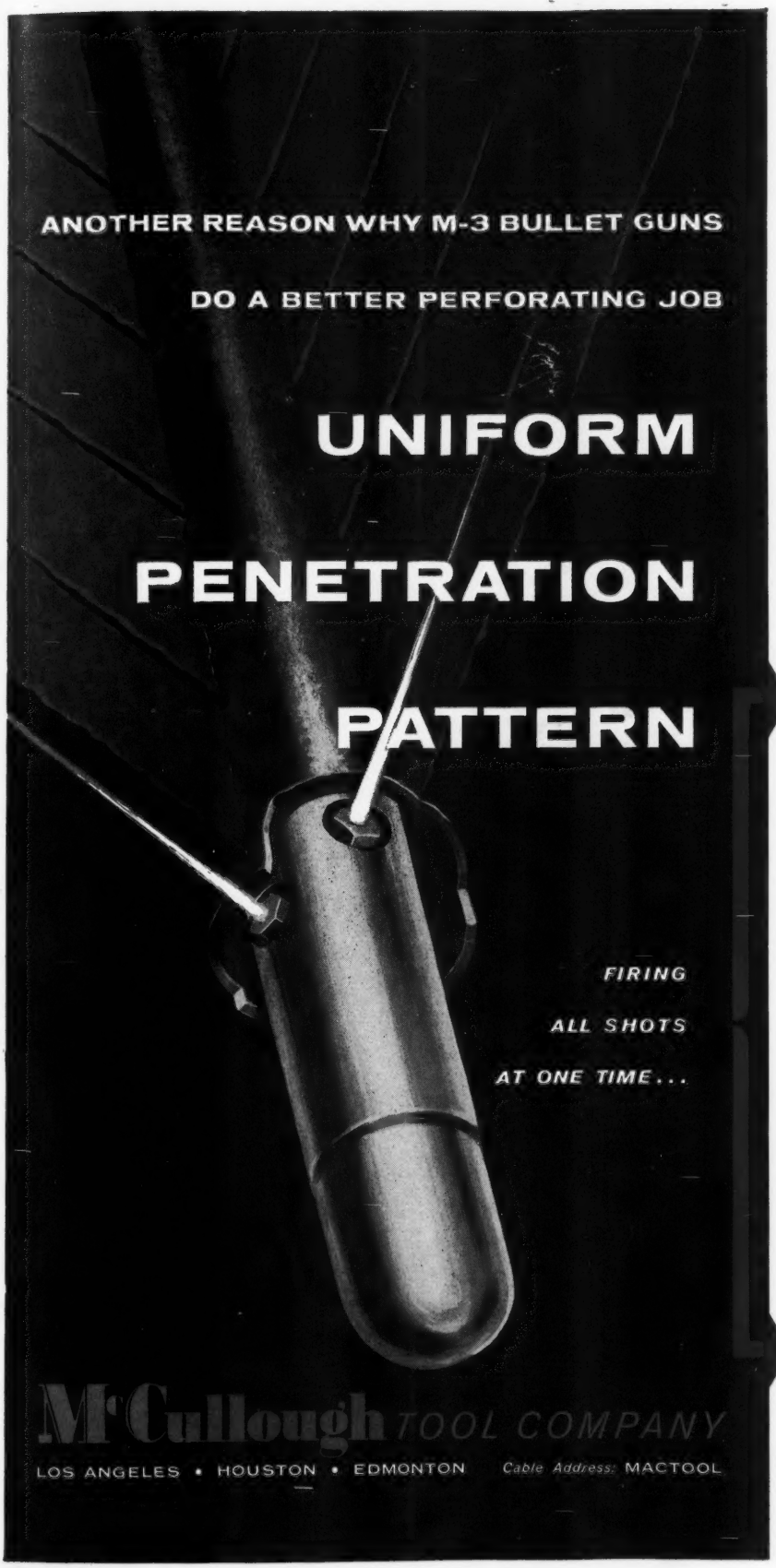

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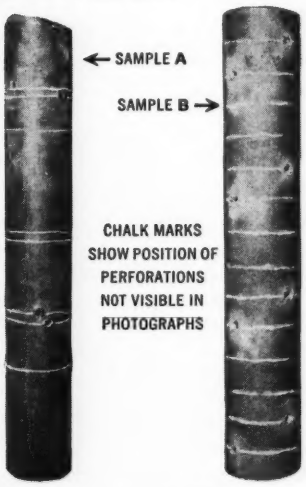
An M-3 Gun fires all shots at one time while the gun is motionless in the casing. Thus, perforations are the exact pattern of the chambers in the gun – in any shot density desired.

Combine McCullough's precise depth measurements with deep, evenly spaced perforations covering the *entire* pay zone and you get maximum drainage from formation to well bore – best possible production.

prevents bunching of shots in one small area in pay zone, giving insufficient coverage – prevents scattering of shots over a wide area, possibly missing the pay zone entirely. Sample A (actual photo of pipe recovered from well) shows the erratic shot pattern produced by a gun firing one shot at a time. As each shot is fired the upward thrust of released gases causes the gun to dance up and down.



eliminates the danger of possible pipe damage or failure. Too many perforations in one spot or in a coupling can cause pipe to part if it is in severe tension. Sample B is an actual example of six shots per foot fired by an M-3 Bullet Gun. Note the uniformity of shot pattern – no danger here of seriously weakening your casing, and you get the most productive perforating job possible.

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